

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) An assay platform for isolating, harvesting, detecting or quantifying a target polypeptide molecule, the platform comprising a substrate, a polymer matrix attached to the substrate, and a binding ligand attached to the polymer matrix having an affinity for the target polypeptide molecule, the binding ligand being selected from the group consisting of metal chelates, anion exchangers, cation exchangers, hydrophobic binding ligands, antibodies, streptavidin, avidin, biotin, glutathione, protein A, protein G, and protein L, wherein the polymer matrix is covalently attached directly to the substrate to provide a density of the polymer matrix on the substrate of at least $2 \mu\text{g}/\text{cm}^2$.

2. (original) The assay platform according to claim 1 wherein the density of the polymer matrix on the substrate is $4 \mu\text{g}/\text{cm}^2$ to $30 \mu\text{g}/\text{cm}^2$.

3. (original) The assay platform according to claim 1 wherein the density of the polymer matrix on the substrate is $6 \mu\text{g}/\text{cm}^2$ to $15 \mu\text{g}/\text{cm}^2$.

4. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of at least $1 \text{ nanomole}/\text{cm}^2$.

5. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of $1.2 \text{ nanomoles}/\text{cm}^2$ to $185 \text{ nanomoles}/\text{cm}^2$.

6. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of $1.5 \text{ nanomoles}/\text{cm}^2$ to $90 \text{ nanomoles}/\text{cm}^2$.

7. (original) The assay platform according to claim 1 wherein the polymer matrix has a binding ligand density of 1.8 nanomoles/cm² to 15 nanomoles/cm².

8. (original) The assay platform according to claim 1 wherein the substrate is a multi-well plate.

9. (original) The assay platform according to claim 8 wherein the multi-well plate is a 96, 384 or 1536 well polystyrene or polypropylene multiwell plate.

10. (canceled).

11. (original) The assay platform according to claim 1 wherein the substrate is glass.

12. (original) The assay platform according to claim 1 wherein the substrate is plastic.

13. (previously presented) The assay platform according to claim 113 wherein the polymer matrix comprises a natural polymer.

14. (previously presented) The assay platform according to claim 113 wherein the polymer matrix comprises a dextran polymer or derivative thereof.

15. (previously presented) The assay platform according to claim 113 wherein the polymer matrix comprises a synthetic polymer.

16. (previously presented) The assay platform according to claim 113 wherein the assay platform has the capacity to bind polypeptides having a molecular weight of less than 3.5 kDa in an amount of at least 1 nanomole/cm².

17. (previously presented) The assay platform according to claim 1 wherein the assay platform has the capacity to bind polypeptides having a molecular weight of 3.5 kDa to 500 kDa in an amount of $0.5 \mu\text{g}/\text{cm}^2$ to $20 \mu\text{g}/\text{cm}^2$.

18. (previously presented) The assay platform according to claim 1 wherein the assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 500 kDa in an amount of $1 \mu\text{g}/\text{cm}^2$ to $20 \mu\text{g}/\text{cm}^2$.

19. (previously presented) The assay platform according to claim 1 wherein the assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 350 kDa in an amount of $2 \mu\text{g}/\text{cm}^2$ to $20 \mu\text{g}/\text{cm}^2$.

20. (previously presented) The assay platform according to claim 1 wherein the assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 350 kDa in an amount of $3 \mu\text{g}/\text{cm}^2$ to $15 \mu\text{g}/\text{cm}^2$.

21. (previously presented) The assay platform according to claim 1 wherein the assay platform has the capacity to bind polypeptides having a molecular weight of 10 kDa to 350 kDa in an amount of $4 \mu\text{g}/\text{cm}^2$ to $10 \mu\text{g}/\text{cm}^2$.

22. (canceled).

23. (previously presented) The assay platform according to claim 1 wherein the polymer matrix binds to polypeptide target molecules having a molecular weight up to 350 kDa in an amount of at least $2 \mu\text{g}/\text{cm}^2$.

24. (original) The assay platform according to claim 1 wherein the binding ligand comprises a metal chelate.

25. (previously presented) The assay platform according to claim 24 wherein the metal chelate is a metal chelate derived from iminodiacetic acid, nitriloacetic acid or an analog thereof.

26. - 29. (canceled).

30. (previously presented) The assay platform according to claim 1 wherein the binding ligand is covalently attached to the polymer molecule through a spacer.

31. (previously presented) The assay platform according to claim 30 wherein the spacer comprises a lysine derivative.

32. (previously presented) The assay platform according to claim 30 wherein the spacer further comprises an aminocaproic acid derivative.

33. (previously presented) The assay platform according to claim 1 wherein the substrate is a multiwell polystyrene plate, wherein the polymer matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is a nickel chelate, and wherein the polymer matrix has a binding ligand density of 1.5 nanomoles/cm² to 7.5 nanomoles/cm².

34. (previously presented) The assay platform according to claim 1 wherein the substrate is a multiwell polystyrene plate, wherein the polymer matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is a Gallium or Iron chelate, and wherein the polymer matrix has a binding ligand density of 1.5 nanomoles/cm² to 7.5 nanomoles/cm².

35. (previously presented) The assay platform according to claim 1 wherein the substrate is a multiwell polystyrene plate, wherein the polymer matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is glutathione, and

wherein the polymer matrix has a binding ligand density of 1.5 nanomoles/cm² to 7.5 nanomoles/cm².

36. (canceled).

37. (presently presented) The assay platform according to claim 1 wherein the substrate is a multiwell polystyrene plate or a multiwell polypropylene plate, wherein the polymer matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is streptavidin, and wherein the polymer matrix has a binding ligand density of 1.5 µg/cm² to 7.5 µg/cm².

38. (previously presented) The assay platform according to claim 1 wherein the substrate is a multiwell polystyrene plate, wherein the polymer matrix comprises a dextran polymer or derivative thereof, wherein the binding ligand is selected from the group consisting of protein A, protein G, protein L, or a mixture thereof and wherein the polymer matrix has a binding ligand density of 1.5 µg/cm² to 7.5 µg/cm².

39. - 112. (canceled).

113. (previously presented) An assay platform according to claim 1 wherein the polymer matrix is a crosslinked mixture of at least two polymers, the crosslinked matrix being formed by (i) combining the substrate with a mixture comprising first and second polymers, the first polymer possessing a reactive group which upon activation crosslinks the first and second polymers to form the polymer matrix and covalently attaches the polymer matrix to the substrate, the second polymer having an absence of such reactive groups, and (ii) activating the reactive groups of the first polymer in the combination to form the polymer matrix and covalently bind the matrix to the substrate, wherein the density of the crosslinked polymer matrix on the substrate is at least 2 µg/cm².

114. - 117. (canceled).

118. (previously presented) The assay platform of claim 1 wherein the substrate is a multiwell plate and the polymer matrix comprises a polysaccharide or a derivatized polysaccharide.

119. (previously presented) The assay platform of claim 1 wherein the substrate is a multiwell plate, the polymer matrix comprises a polysaccharide or a derivatized polysaccharide, and the binding ligand comprises a metal chelate.

120. (previously presented) The assay platform of claim 1 wherein the substrate is a multiwell plate, the polymer matrix comprises a polysaccharide or a derivatized polysaccharide, and the binding ligand comprises a metal chelate of iminodiacetic acid, nitrilotriacetic acid or an analog thereof.

121. (previously presented) The assay platform of claim 1 wherein binding ligand is selected from the group consisting of metal chelates, anion exchangers, cation exchangers, hydrophobic binding ligands, antibodies, and streptavidin.

122. (previously presented) The assay platform of claim 121 wherein the polymer matrix comprises a natural polymer derivative.

123. (previously presented) The assay platform of claim 121 wherein the polymer matrix comprises a polysaccharide derivative.

124. (previously presented) The assay platform of claim 121 wherein the polymer matrix comprises a dextran derivative.

125. (previously presented) The assay platform of claim 121 wherein the polymer matrix comprises a natural polymer derivative and the substrate is a multiwell plate.

126. (previously presented) The assay platform of claim 121 wherein the polymer matrix comprises a polysaccharide derivative and the substrate is a multiwell plate.

127. (previously presented) The assay platform of claim 121 wherein the polymer matrix comprises a dextran derivative and the substrate is a multiwell plate.

128. (previously presented) The assay platform of claim 121 wherein the polymer matrix comprises a dextran derivative, the substrate is a multiwell plate, the binding ligand is a metal chelate and the metal chelate comprises copper.

129. (previously presented) The assay platform of claim 1 wherein binding ligand is a metal chelate and the polymer matrix comprises a polysaccharide derivative.

130. (previously presented) The assay platform of claim 1 wherein binding ligand is a metal chelate and the polymer matrix comprises a dextran derivative.

131. (previously presented) The assay platform of claim 1 wherein binding ligand is biotin, avidin or streptavidin and the polymer matrix comprises a natural polymer derivative.

132. (previously presented) The assay platform of claim 1 wherein binding ligand is biotin, avidin or streptavidin and the polymer matrix comprises a polysaccharide derivative.

133. (previously presented) The assay platform of claim 1 wherein binding ligand is biotin, avidin or streptavidin and the polymer matrix comprises a dextran derivative.

134. (previously presented) The assay platform of claim 1 wherein binding ligand is an antibody and the polymer matrix comprises a natural polymer derivative.

135. (previously presented) The assay platform of claim 1 wherein binding ligand is an antibody and the polymer matrix comprises a polysaccharide derivative.

136. (previously presented) The assay platform of claim 1 wherein binding ligand is an antibody and the polymer matrix comprises a dextran derivative.

137. (previously presented) The assay platform of claim 1 wherein binding ligand is glutathione and the polymer matrix comprises a natural polymer derivative.

138. (previously presented) The assay platform of claim 1 wherein binding ligand is glutathione and the polymer matrix comprises a polysaccharide derivative.

139. (previously presented) The assay platform of claim 1 wherein binding ligand is glutathione and the polymer matrix comprises a dextran derivative.

140. (previously presented) The assay platform of claim 1 wherein binding ligand is an anion exchanger and the polymer matrix comprises a natural polymer derivative.

141. (previously presented) The assay platform of claim 1 wherein binding ligand is an anion exchanger and the polymer matrix comprises a polysaccharide derivative.

142. (previously presented) The assay platform of claim 1 wherein binding ligand is an anion exchanger and the polymer matrix comprises a dextran derivative.

143. (previously presented) The assay platform of claim 1 wherein binding ligand is a cation exchanger and the polymer matrix comprises a polysaccharide derivative.

144. (previously presented) The assay platform of claim 1 wherein binding ligand is a cation exchanger and the polymer matrix comprises a dextran derivative.

145. (previously presented) The assay platform of claim 1 wherein binding ligand is an antibody, the polymer matrix comprises a dextran derivative, and the substrate is multiwell plate.

146. (new) The assay platform according to claim 1 wherein the substrate is a Matrix Assisted Laser Desorption Ionization (MALDI) plate.